REMARKS

Reconsideration of this application, as amended, is respectfully requested.

RE: ALLOWABLE SUBJECT MATTER

The Examiner's indication of the allowability of the subject matter of claim 12 is respectfully acknowledged. Claim 12, however, has not been rewritten in independent form at this time since, as set forth in detail hereinbelow, it is respectfully submitted that its parent claim 6, as amended, also recites allowable subject matter.

RE: THE SPECIFICATION

The abstract has been amended to make a few minor grammatical improvements and to make it more easily readable.

It is respectfully submitted, however, that the originally filed abstract was in full complied with the requirements of MPEP 608.01(b). That is, the original abstract included less than 150 words, did not include legal phraseology, concisely described the method of the present invention and did not include unnecessary phrases such as "the disclosure concerns."

As pointed out above, the abstract has been amended to make some minor improvements. If the amended abstract is still not

acceptable to the Examiner, it is respectfully requested that the Examiner particularly point out the reason for the objection.

No new matter has been added, and it is respectfully requested that the amendments to the specification be approved and entered, and that the objection to the specification be withdrawn.

RE: THE CLAIMS

Independent claims 1 and 6 have been amended to incorporate the subject matter of (now canceled) claims 2 and 8, respectively, and independent claim 13 has been amended to correct a few minor informalities of which the undersigned has become aware, as well as to incorporate the subject matter of (now canceled) claim 8.

In addition, claims 4 and 11 have been amended to more clearly recite the features of the present invention shown in Fig. 9.

In addition, new claim 14 has been prepared to correspond to the (allowable) subject matter of claim 12 depending from independent claim 13.

No new matter has been added, and it is respectfully requested that the amendments to claims 1, 4, 6, 11 and 13 and the addition of claim 14 be approved and entered.

RE: EXPLANATION OF CLAIMS 4 and 11

Amended claims 4 and 11 more clearly recite the feature of the present invention shown in Fig. 9 whereby the two wheels selected for use in calculating the rotation angle are most distant along a direction perpendicular to the moving direction of the wheels of the moving pedestal.

As shown in Fig. 9, if three lines L1, L2 and L3 are drawn through the centers of the wheels 7a, 7b and 7c in a direction parallel to the moving direction, then the distances between the lines are different. That is, there is a distance Nc between lines L3 and L1, a distance Nb between lines L3 and L2, and a distance Na between lines L1 and L2. Thus, in Fig. 9 the wheels that are most distant along the direction perpendicular to the moving direction (the direction perpendicular to lines L1, L2, L3 and the moving direction in Fig. 9) are wheels 7b and 7c.

And it is respectfully submitted that simply because three wheels are equidistant from each other does not mean that each pair of wheels is equally distant in the direction perpendicular to the moving direction.

THE PRIOR ART REJECTION

Claims 1-11 and 13 were rejected under 35 USC 103 as being obvious in view of the combination of USP 5,153,833 ("Gordon et

al") and USP 5,479,597 ("Fellous"). This rejection, however, is respectfully traversed.

According to the present invention as recited in amended independent claims 1, 6 and 13, a reference position on a floor surface on which the moving pedestal moves and a reference angle of the moving pedestal are both set, and a moving amount of the moving pedestal from the reference position and a rotation angle of the moving pedestal from the reference angle are detected. A position and an angle of the camera with respect to the object are found/calculated based on the reference position, the reference angle, the moving amount and the rotation angle. And the data of the position and the angle of the camera with respect to the object is transmitted to a computer for operating together the real object image of the object taken with the camera and another image based on the position and the angle of the camera with respect to the object.

According to the present invention as recited in amended independent claims 1, 6 and 13, moreover, the moving amount of the moving pedestal is obtained by measuring a length of a portion of a wheel of the moving pedestal, which has been brought into contact with the floor surface.

With this structure the position and angle of the camera with respect to the object are determined inexpensively and with great accuracy, without restricting shooting, so that the image

of the object and another image (i.e. a computer-generated image) may be operated together in relationship to each other while maintaining the three-dimensional relationship therebetween. By measuring the length of the portion of the wheel of the moving pedestal that has been brought into contact with the floor, the moving amount of the moving pedestal can be accurately obtained.

As recognized by the Examiner, Gordon et al discloses detecting a moving amount by determining a number of rotations of the wheels of the camera assembly based on rotation of the motors driving the wheels.

On page 2 of the Office Action, the Examiner asserts that determining a moving distance based on the number of rotations of the wheels "directly corresponds to measuring the length of a portion of a wheel, which has been brought into contact with a floor surface," in the manner now recited in amended independent claims 1, 6 and 13. The Examiner also asserts on page 2 of the Office Action that Gordon et al "measures a length by means of an encoder."

It is respectfully pointed out, however, that measuring rotations of a wheel is not equivalent to measuring the length of the portion of the wheel that has been brought into contact with the floor surface. That is, to measure the length means to (directly) measure the length. On the other hand, detecting the

rotation of a wheel merely allows an (often inaccurate) estimate of the length traveled by the wheel to be made, as explained on page 13 of the specification and in more detail below.

Generally, as the Examiner has clearly recognized, if the number of rotations of a wheel is "n" and the radius of the wheel is "r," then the moving distance (L1) of the wheel is $L1 = n \times 2\pi r$, or the length of the portion of the wheel, which has been brought into contact with a floor surface.

However, the radius of the wheel may be changed due to abrasion, resulting in a new radius "$r - \Delta r$," in which Δr represents the amount of abrasion. In this case, the actual length (L2) of the portion of the wheel that has been brought into contact with a floor surface is $L2 = n \times 2\pi(r - \Delta r)$. Thus, if the wheel is one that abrades easily, such as a rubber tire attached to a moving pedestal for a camera, it is necessary to know both "n" and "$r - \Delta r$" to use the number rotations of the wheel to accurately measure the length of the portion of the wheel that has been brought into contact with a floor surface.

However, Gordon et al does not disclose determining the changing radius of the wheels. Therefore, as the wheels of Gordon et al are reduced in diameter due to abrasion, the estimate of distance traveled by each wheel is incorrect by $n \times 2\pi\Delta r$.

When the use of the data of the moving distance is to accurately operate together a real image and a computer generated image, the error $n \times 2\pi\Delta r$ is not negligible.

Thus, it is respectfully submitted that, contrary to the Examiner's assertions on page 2 of the Office Action, estimating a moving distance based on encoder pulses is not the same as (directly) measuring a length of a portion of a wheel of the moving pedestal, which has been brought into contact with the floor surface.

And it is respectfully submitted, therefore, that Gordon et al does not disclose, teach or suggest the feature of the present invention as recited in amended independent claims 1, 6 and 13 whereby the moving amount of the moving pedestal is obtained by measuring a length of a portion of a wheel of the moving pedestal, which has been brought into contact with the floor surface.

Fellous, moreover, has merely been cited for the disclosure of the operation together of a real and synthetic image. In addition, it is respectfully pointed out that Fellous discloses that the pedestal 4 and carriage 5 thereof are moved on rails 6. Therefore, it is respectfully submitted that Fellous clearly does not disclose, teach or suggest detecting movement amounts or rotation angles in the manner of the claimed present invention.

In view of the foregoing, it is respectfully submitted that the present invention as recited in each of amended independent claims 1, 6 and 13, and claims 3-5, 7, 9-12 and 14 respectively depending therefrom, clearly patentably distinguishes over the combination of Gordon et al and Fellous under 35 USC 103.

* *

Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

/Douglas Holtz/

Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
220 Fifth Avenue - 16th Floor
New York, New York 10001-7708
Tel. No. (212) 319-4900
Fax No. (212) 319-5101

DH:iv